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EXAMINER	
FERNANDEZ, KATHERINE L	
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3768	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,990	BINDEFELD, HERVE	
	Examiner	Art Unit	
	Katherine L. Fernandez	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35 and 43-46* is/are rejected.

7)☒ Claim(s) *22, 29-32, 33 and 36-42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/27/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed on is acknowledged. The information disclosure statement meets the requirements of 37 C.F.R. 1.97 and 1.98 and therefore the references therein have been considered.

Claim Objections

3. Claims 36-42 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

4. Claims 22, 29-32, and 33 are objected to because of the following informalities:

Claim 22 recites the limitation "actuator buttons" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 recites the limitation "semi-solid product" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 30 recites the limitation "the semi-solid product" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 31 recites the limitation "gel" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 33 recites the limitation "interpretation software" in line 2 and "microprocessor" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,3, 9,11, 13-14, 20-21, 23-24, 32, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Bouricius et al. (US Patent No. 5,960,089).

Regarding claim 1, Bouricius et al. disclose a medical diagnostic device that use Doppler ultrasound for obstetrical and vascular monitoring applications and a Doppler ultrasound bell that is attachable to an acoustic stethoscope (i.e. dual detection of stethoscopic and Doppler signals) (column 1, lines 7-11). Their device comprises a sound-transmitting linking conduit (28) connected, at one end, to a housing (33) which at least partially forms an ear trumpet (24,26)(i.e. chest piece and acoustic bell) and, at the other end, to at least one earpiece (32) for listening to a stethoscopic signal coming from the ear trumpet, wherein the housing is coupled to at least one ultrasound probe (76,84) designed to permit convergence of reception of the ultrasonic and stethoscopic signals and connected to a transducer processing circuit (48, see Figure 7) capable of

supplying, from a Doppler signal, an audio signal, by coupling the processing circuit to a loudspeaker (55) for stethoscopic-type listening or a video signal by coupling the processing circuit with display means (98) to provide visual information. See Figures 1-4.

Regarding claim 3, Bouricius et al. disclose that the loudspeaker (55) is arranged substantially against the acoustic bell so that the audio signal is amplified by the acoustic bell and renders the stethoscopic sound perceptible at the earpiece (32) via the linking conduit (28) in the same way as in a stethoscope (column 2, lines 16-34). See Figures 2-4.

Regarding claim 9, Bouricius et al. disclose that a system of recording and viewing the Doppler or stethoscopic video signal can be provided by a wireless connection between the electronic processing circuit and a viewing or printing module (column 11, lines 5-8).

Regarding claims 11 and 20-21, Bouricius et al. disclose that power to the electronic components inside the ultrasound bell is provided by a battery (50) which is connected to the electronic circuitry via the on/off switch (104) (i.e. actuator) which is accessible by the user (column 10, lines 13-21). See Figure 2.

Regarding claim 13, Bouricius et al. disclose that a rechargeable battery is provided to supply power (column 10, lines 13-21).

Regarding claim 14, Bouricius et al. disclose that the housing forms the ear trumpet (24,26) accommodating the ultrasound probe (54) in a centered manner, and contact means (52) are provided to be interposed temporarily between the ultrasound

probe (54) and the membrane of the ear trumpet, in order to transmit a Doppler signal to the processing circuit (48) coupled to the loudspeaker (55) which emits the audio signal amplified in the ear trumpet (column 6, line 66 through column 7, line 61). See Figures 2-4.

Regarding claim 23, the probe (54) is accommodated in the housing and outside the ear trumpet (24,26), and the housing forms a substantially cylindrical turret (24) (column 6, line 66 through column 7, line 15). See Figures 2-4.

Regarding claim 24, as can be seen from Figure 5, the probe, which is located within the acoustic coupler (52) is located partially inside and partially outside the housing (33). Bouricius et al. further disclose that their invention may include sealing features such as o-rings to improve the seal between the bore (60) in the acoustic coupler (52) and the turret port (44) and the seal between the surface (56) of the acoustic coupler and the turret port (column 7, lines 16-35). See Figure 1-5.

Regarding claim 25, as can be seen in Figure 4 and Figure 5, the housing (33) has a lower part curved in its central area.

Regarding claim 27, Bouricius et al. disclose that the transmitter and receiver (part of the probe) are on inclined surfaces to provide an angle of less than 90 degrees (i.e. an angle between 30 and 70 degrees falls in this range) between the ultrasound beam and the flowing blood.

Regarding claim 28, the housing (33) has a turret shape substantially cylindrical and of ovoid cross section, the turret (24) is limited by an upper face, at the center of which the linking conduit (28) emerges, and by an open lower face where the

membrane of the ear trumpet and the end of the probe are positioned (See Figures 1-4).

Regarding claim 32, the probe (54) is connected to a loudspeaker (55), mounted on an outer face of the ear trumpet via the transducer circuit (54), the Doppler signal is converted by the transducer circuit in order to supply an audio signal via the loudspeaker (55), the sound being amplified in the ear trumpet, propagated in the linking conduit (28) then listened to at the earpieces (32) (column 4, line 66 through column 5, line 13 and column 6, lines 39-65). See Figures 1-4.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 10, 17, 18, 26, 29, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Lee et al. (US Patent No. 5,630,418).

Regarding claims 2, 29, and 43, as discussed above, Bouricius et al. meet the limitations of claims 1 and 23. However, they do not disclose that means are provided for delivering and forming a film of semi-solid product on the skin of the patient, for achieving an intimate contact between skin and housing and for channeling wave propagation, nor do they disclose that the medium is a gel. Lee et al. disclose a probe for use in a hand held Doppler fetal heart beat detection and monitoring system that will automatically detect and attenuate break noise. They disclose the use of a medium,

typically an aqueous based acoustic gel or petroleum based gelatin applied to the base of the probe (column 3, lines 37-43). The probe is then placed against the outer skin of the mother with the medium between the probe and the skin (column 3, lines 43-45). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have include with the apparatus of Bouricius et al. a means for delivering and forming a film of semi-solid product (such as a gel) on the skin of the patient, for achieving. The motivation for doing so would have been aid in the transmission of ultrasonic waves generated by the probe into the body of the subject and in the transmission of the reflected ultrasonic waves from the subject to the probe, as taught by Lee et al. (column 3, lines 39-43).

Regarding claim 10, Bouricius et al. do not disclose peripheral outputs that are provided in order to permit a connection to a microcomputer and optionally to an audio headset. Lee et al. disclose that their probe (11) includes plugs (15 and 16) that can connect to peripheral units, such as a headset (10) and a calculation unit (12). At the time of the invention, it would have been obvious to one of ordinary skill in the art to include peripheral outputs that permit a connection to a microcomputer and optionally to an audio headset. The motivation for doing so would have been to allow the apparatus to be capable of functions such as listening to heart beat and for further processing of the signals, as taught by Lee et al. (column 3, lines 11-36).

Regarding claims 12 and 17-18, as discussed above, Bouricius et al. meet the limitations of claim 11. However, they do not disclose that the actuator is a multifunction switch which serves also for selective control to the means for supplying stethoscopic

Doppler or cross diagnoses by the viewing means to the means for triggering the diagnosis from measurements delivered by the processing circuit or picked up from listening, and to the system for recording and remote viewing, the multifunction being realized by different stages identified by a decision table or a logic unit for programming the connections of the circuits as a function of the number of times the actuator is activated. They also do not disclose that the actuator button controls the contact means of interposition between the probe and the membrane, nor do they disclose that the actuator button controls means to tilt the probe. Lee et al. disclose that their apparatus includes a power button (column 3, lines 12-29). A microcontroller monitors the power button and performs various functions when the power button is depressed (column 5, line 26 through column 6, line 33). For example, when the power button is depressed, the microcontroller will switch the probe from the off state (STATE 0) to STATE 1, a low power state (column 5, lines 37-46). When the power button is held down for the second period, the microcontroller will switch the probe to STATE 2, high power (column 5, lines 37-46). See Figure 4 (i.e. decision table). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the actuator be a multifunction switch which serves the above listed limitations, with the multifunction being realized by different stages identified by a decision table or a logic unit. The motivation for doing so would have been to provide an efficient way to switch between functions, as taught by Lee et al. (column 5, line 26 through column 6, line 33).

Regarding claim 26, Bouricius et al. do not disclose that the probe is ouside the housing, which is reduced to an upper part for signal processing, the probe being fixed

along the ear trumpet. Lee et al. disclose that their probe (11) is outside the calculation unit (12) which may be viewed as the housing (Figure 1). They further disclose that the calculation unit (i.e. housing) includes electronic circuitry for processing the analog signal from the probe (column 3, lines 12-30). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the invention of Bouricius et al to have the probe outside the housing, and fix the probe along the ear trumpet. The motivation for doing so would have been to have separate units for generating the ultrasonic waves and processing the signals, as taught by Lee et al. (column 3, lines 12-30).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Durley (US Patent No. 4,413,629).

Bouricius et al. disclose that an electrical signal is provided to an audio preamplifier (96) which amplifies the electrical signal and provides the signal to the signal processing and display circuitry (98) (column 9, line 66 through column 10, line 12; Figure 7). However, Bouricius et al. do not disclose that a microphone is provided which is coupled to the ear trumpet to detect the stethoscopic sound signal and transmit it in the form of an electrical signal. Durley discloses a portable ultrasonic Doppler system for sensing movement and for monitoring fetal heart rate (column 1, lines 5-8). They disclose that an embodiment of their apparatus contains a microphone that is mounted at the tail end of the handheld unit (column 10, lines 1-2). They disclose that the microphone can be used to listen to a patient's heart beat in a conventional manner, in which case the system would function as an electronic stethoscope (column 10, lines

12-15). It is well known in the art that a microphone is an instrument that converts sound waves into an electric current. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have included in the system a microphone coupled to the ear trumpet. The motivation for doing so would have been to be able to monitor a patient's heartbeat, as taught by Durley (column 10, lines 12-15).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al in view of Muramatsu et al. (US Patent No. 6,626,837). Bouricius et al. do not specifically disclose that the viewing means are in the form of a liquid crystal screen. Muramatsu et al. disclose an ultrasonograph detection apparatus for sending ultrasound to a region to be diagnosed and obtaining information about the diagnosed region based on reflected waves (column 1, lines 7-13). They disclose that the pulse waveform and pulse rate are obtained and sent to the display portion, which is made of a liquid crystal display (column 5, lines 48-53). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the viewing means be in the form of a liquid crystal screen. The motivation for doing so would have been that liquid crystal screens are commonly used for display, and can be used to visualize the pulse waveform and pulse rate, as taught by Muramatsu et al. (column 5, lines 48-53).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of

Bouricius et al. disclose a processing and display circuitry which is used to calculate and display the heart rate or blood velocity if desired (column 10, lines 4-6). An electrical signal is provided to the circuitry by the preamplifier (column 9, line 66

through column 10, line 3). However, they do not disclose that a microprocessor controlled by an interpretation algorithm is coupled to the processing circuit in order to permit analysis and a combination of stethoscopic or Doppler measurements or both. Burton et al. disclose a device for the non-invasive measurement of cardiac output of a human by means of a pulse-Doppler insonification technique (column 1, lines 12-16). They disclose that the use of a microprocessor to perform system level control of the device and performs real-time tasks such as determination of optimal gain, determination of optimal depth of the aortic velocity profile, and maintenance of signal quality during data acquisition at optimal gain and depth (column 6, lines 11-22). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have provided a microprocessor controlled by an algorithm to the processing circuit to permit analysis of Doppler measurements, etc. The motivation for doing so would have been to provide system level control of the device, as taught by Burton et al. (column 6, lines 11-22).

12. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Abreu (US Pub No. 2002/0049374).

As discussed above, Bouricius et al. meet the limitations of claim 1. Further, Bouricius et al. disclose that their apparatus can be used to listen to sounds produced by the patient (i.e. provide diagnostic information) (column 4, line 66 through column 5, line 13). Bouricius et al. do not disclose that their apparatus comprises a display module with three light-emitting diodes which is mounted on the housing which provides an interpretation and a diagnosis based on the measurement of the Doppler signal or a

cross diagnosis based on the interpretation algorithm by giving preference to the Doppler diagnosis when the interpretations are divergent, each diode of the module emitting in a specific color corresponding, respectively, to a positive diagnosis, a negative diagnosis, or a non-interpretable result in the case where at least the Doppler measurement is not interpretable. Abreu disclose a contact device for mounting on a part of the body to measure bodily functions and to treat abnormal conditions indicated by the measurements (pg. 1, paragraph [0002]). They further disclose that their apparatus includes a display for numerically displaying intraocular pressure detected by the system which can comprise of light emitting diode display connected and responsive to a conversion unit of a calculation unit (pg. 21, paragraph [0254]). The display can give indications as to whether the intraocular pressure is within certain ranges (pg. 21, paragraph [0254]). The display may include 3 LEDS (green, yellow, and red) (pg. 21, paragraph [0254]). When pressure is too high, the red lights up, when the pressure is normal, the green lights up, and when the pressure is between the normal and the high range, the yellow lights up (pg. 21-22, paragraph [0255]). At the time of the invention, it would have been obvious to one of ordinary skill in the arts to include the limitations of claims 7-8 in the invention of Bouricius et al. The motivation for doing so would have been to provide a system to be able to alert the doctor when medical attention is needed, as taught by Abreu (pg. 21-22, paragraph [0255]).

13. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Sinofsky et al. (US Patent No. 5,135,001).

As discussed above, Bouricius et al. meet the limitations of claims 15-16. However, they do not disclose that the contact means of interposition comprise an inflatable balloon covering the distal end of the probe and a device for inflating the balloon with liquid. Further, they do not disclose that the inflating device comprises a tubing which brings the balloon into communication with a source of liquid and means intended to drive liquid from the source into the tubing. Sinofsky et al. disclose instruments that can be inserted into body lumens or cavities and have capability for ultrasound imaging (column 1, lines 7-10). They disclose an embodiment of their invention in which an ultrasonic sheath is attached to an inflatable balloon (column 4, lines 49-61). The balloon is filled with liquid by known techniques (i.e. inflating device with tubing which brings the balloon into communication with a source of liquid and means intended to drive liquid from the source into the tubing) such that there is good contact made between the outside surface of the balloon and the internal surfaces of the living body (column 4, lines 49-61). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have included the limitations of claims 15-16. The motivation for doing so would have been to assure more efficient transmission and echo reception of ultrasound energy, as taught by Sinofsky et al. (column 4, lines 49-61).

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Kondo et al. (US Patent No. 5,662,116).

Bouricius et al. do not disclose that means intended to tilt the probe comprises at least one cable of which one end is fixed to the end of the probe and means intended to

pull the other end of the cable and tilt the end of the probe in order to orient it toward the sound response most perceptible at the earpiece. Kondo et al. disclose a multi-plane electronic scan ultrasound probe capable of multi-plane electronic scanning through rotations of an ultrasound transducer. They disclose that their ultrasound probe comprises a tilt control cable encasing a tilt signal transmission wire in a flexible coil sleeve between the distal end section of the catheter member and a manipulating head (column 10, lines 47-60).

15. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Guckel et al. (US Patent No. 5,644,177).

Bouricius et al. does not disclose that means are provided which are intended to maintain the flow of liquid when the actuator button is released, these means comprising a plunger made of a magnetic material for driving the liquid, and an electromagnetic coil applying a magnetic force for holding the plunger. Guckel et al. disclose micromechanical structures capable of actuation for purposes such as fluid flow control (column 2, lines 24-37). They disclose a microactuator that includes a magnetic core of ferromagnetic material (column 2, lines 38-67). A gap is formed in the fixed core into which a plunger can move (column 2, lines 38-67). An coil is coupled to the magnetic core and acts to draw the plunger into the gap, or can repel the plunger (column 2, lines 38-67). This can be used to open or close a fluid control valve (column 2, lines 38-67). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have included the limitations of claim 22. The motivation for

doing so would have been to provide a small structure capable of efficient fluid control, as taught by Guckel et al. (column 2, lines 24-37).

16. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Lee et al. as applied to claims 2, 10, 17, 18, 26, 29, and 43 in view of Christ et al. (US Patent No. 5,984,889).

Bouricius et al. do not disclose a plunger which controls the semi-solid product and is accessible from the housing, nor do they disclose that their apparatus comprises a reservoir arranged in the housing, with the product being delivered through a flexible tube via an ejection nozzle situated in contact with the lower face of the turret and the thrust of the plunger making it possible to dose the correct quantity of gel delivered via the nozzle. Christ et al. disclose a phacoemulsification handpiece for ophthalmic surgical procedures generally includes a housing, a horn, a transducer providing means for generating ultrasonic energy, and a needle for radiating ultrasonic energy into an eye, as well as having means for delivering an irrigation fluid into the eye (column 2, lines 46-56). They disclose that the valve may comprise any suitable mechanism (i.e. plunger) that will open a flow of the viscoelastic material under pressure, upon manual activation thereof and will automatically close the flow of material upond manual release thereof (column 5, line 66 through column 6, line 8). They disclose that an accumulator (i.e. reservoir) which holds the viscoelastic material is integrated into the housing (column 6, lines 31-36). Further, they disclose that their invention includes a conduit for delivering the viscous fluid (column 5, lines 1-13). At the time of the invention, it would have been obvious to one of ordinary skill in the art to include the limitations listed

above. The motivation for doing so would have been to have the single instrument perform multiple tasks, which would enhance the performance of the procedure, as taught by Christ et al. (column 2, lines 23-43).

17. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Guracar et al. (US Patent No. 6,086,539).

Regarding claims 33-34, as discussed above, Bouricius et al. disclose that their apparatus can include a video display (column 11, lines 5-8). Bouricius et al. do not disclose that the apparatus comprises means for retrieving and storing the results of stethoscopic or Doppler listening or both. Guracer et al. disclose an ultrasound system and to quantification, display and other uses of various parameter data in ultrasound systems (column 1, lines 15-18). Their system includes a microprocessor which controls the reading and writing of image information into and out of memory (column 7, lines 26-35). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have included a means for retrieving and storing the results of stethoscopic or Doppler listening or both. The motivation for doing so would have been to be able to use data over time to derive a quantity, as taught by Guracar et al. (column 3, lines 34-45).

18. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Guracar et al. as applied to claims 33-34 above, and further in view of Abreu.

The combined references of Bouricius et al. in view of Guracar et al. do not disclose that a diagnosis is provided on the basis of the evaluations which have been

retrieved and stored, with the aid of the display module with at least one light emitting diode which is mounted on the housing and coupled to the transducer circuit for viewing the interpretation. Abreu disclose a contact device for mounting on a part of the body to measure bodily functions and to treat abnormal conditions indicated by the measurements (pg. 1, paragraph [0002]). They further disclose that their apparatus includes a display for numerically displaying intraocular pressure detected by the system which can comprise of light emitting diode display connected and responsive to a conversion unit of a calculation unit (pg. 21, paragraph [0254]). At the time of the invention, it would have been obvious to one of ordinary skill in the art to include the limitations of claim 35. The motivation for doing so would have been to provide a system to be able to alert the doctor when medical attention is needed, as taught by Abreu (pg. 21-22, paragraph [0255]).

19. Claims 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouricius et al. in view of Martin (US Patent No. 5,390,679).

Bouricius et al. do not specificallydisclose that the apparatus is applied to screen cardiovascular disease by measuring systolic pressure to establish a Systolic Pressure Index, nor that the disease is an incipient material disease. Martin discloses a system and method for determining the value of a characteristic of the vascular system of a patient from the blood pressure existing in the vascular system (column 5, lines 3-7). They disclose the use of a pressure sensor, such as an ultrasound Doppler sensor, for sensing the blood pressure of a patient (column 7, lines 26-48). The pressure and time of the systolic pressure is investigated (column 8, lines 6-48). They also disclose that

by sensing the blood pressure of a patient the characteristics of the vascular system of the patient can be determined, which means that the system can be used to screen for an incipient material disease (column 7, lines 26-48). At the time of the invention, it would have been obvious to one of ordinary skill in the art to include the limitations of claims 45-46. The motivation for doing so would have been that ultrasound provides a relatively simple, less invasive, and accurate system for continuously determining and displaying data concerning vascular system characteristics, as taught by Martin (column 4, lines 60-67).

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine L. Fernandez whose telephone number is (571)272-1957. The examiner can normally be reached on 8:30-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni M. Mantis-Mercader can be reached on (571)272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ELENI MANTIS MERCADER
SUPERVISORY PATENT EXAMINER